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THE USDA-ARS WORLD COLLECTION OF FLAX –  
Index of Agronomic and Morphologic Characters,  
Oil Content, and Oil Quality

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UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
North Central Region

THE USDA-ARS WORLD COLLECTION OF FLAX-  
Index of Agronomic and Morphologic Characters,  
Oil Content, and Oil Quality

Compiled by,

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## INTRODUCTION

The first accession to the USDA-ARS World Collection of Flax was accepted in 1912. During 1976-1977, 37 new lines were entered into the collection, 27 of Russian derivation, and 10 lines entered as standard procedure when submitted for testing in the Cooperative Regional Flax Trial. At present, there are 2262 accessions in the collection.

There has been a great amount of data accumulated over the past two decades describing various characteristics of varieties or lines in the collection. I have tried to record as much of this information as possible on computer cards and catalogue the information in general data areas. This technical report is the first attempt to release this information to those persons interested or needing data for their own research program.

The data is catalogued so that searches may be performed for a particular characteristic of interest. Also, any complete print-out of a data area may be requested. Those requests can be sent to my address.

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## NUMERICAL LISTING OF THE FLAX WORLD COLLECTION

NAME	CI_NO	SCURCE	CCUNTRY	YEAR	F_OR_S
DAMONT	3	1	NORTH DAKOTA	1912	S
N.D. RESISTANT	8	1	NORTH DAKOTA	1912	S
N.D. RES. #114 ECLLEY-P	13	1	NORTH DAKOTA	1913	S
RESERVE	19	1	MONT.	1913	S
PUNJAB	20	3	INDIA	1913	S
JALAUN	21	3	INDIA	1913	S
LETHBRIDGE GOLDEN	23	3	CANADA	1913	S
OTTAWA WHITE FLOWER	24	2	CANADA	1913	S
WILLISTON GOLDEN	25	1	NORTH DAKOTA	1913	S
NOVA ROSSI SK	27	3	RUSSIA	1913	S
CRETE	31	3	TURKEY	1914	S
SOODO WHITE	36	3	ABYSSINIA	1914	S
BOMBAY	42	3	INDIA	1914	S
MORYE	112	3	ARGENTINA	1915	S
CASILDA	114	3	ARGENTINA	1915	S
PILAR	119	3	ARGENTINA	1915	S
KOREAN	132	3	KOREA	1915	S
MONISTON	133	3	MONT.	1915	S
NOVELTY	140	2	CANADA	1915	S
NOVA ROSSI SK SELECTION	142	2	MINNESOTA	1916	S
JALAUN SELECTION	156	2	INDIA	1916	S
ESCALADA	157	2	ARGENTINA	1917	S
PEHANJO	160	2	ARGENT.	1917	S
RES. X HOSHANGABAD	173	1	NORTH DAKOTA	1918	S
PALE BLUE SELECTION	176	1	NORTH DAKOTA	1919	S
CHIPPEWA	178	1	MINNESOTA	1919	S
BLUE DUTCH SELECTION	179	1	NORTH DAKOTA	1919	S
BILLINGS	184	1	NORTH DAKOTA	1919	S
NEWLAND	188	1	NORTH DAKOTA	1921	S
N.D. NO. 43.012	241	1	NORTH DAKOTA	1921	S
LINDITA	244	1	NORTH DAKOTA	1922	S
BUCA SEL.	270	1	NORTH DAKOTA	1923	S
SLOPE	274	1	NORTH DAKOTA	1923	S
NO. DAK. RES. NO. 52	275	1	NORTH DAKOTA	1923	S
RIO	280	1	RUSSIA	1923	S
VOZ	295	1	ABYSSINIA	1924	S
ABYSSINIA (YELLOW)	300	1	ABYSSINIA	1924	S
ABYSSINIA (BROWN)	301	1	ABYSSINIA	1924	S
ABYSSINIA (BROWN)	302	1	ABYSSINIA	1924	S
USSURISK	303	1	MANCHUR.	1924	S

#### ALPHABETICAL LISTING OF THE FLAX WORLD COLLECTION

A listing of the Flax World Collection by alphabetical order has been valuable in locating lines requested by interested personnel (see Table 2 for example). Often these requests list only a name or cross and the present listing readily identifies whether the line is included in the collection and the C.I. number assigned.

#### ALPHABETICAL LISTING BY SOURCE AND COUNTRY

This listing groups the entries of the collection into three major categories (see Table 3 for example). In the first grouping are entries derived from the United States, in order by state, and then in alphabetical order by name. The second grouping has entries derived from Canada in alphabetical order by name. In the third grouping are entries derived from other foreign countries, in order by country, and then in alphabetical order by name. Entries identified by numbers are always listed last in the sequence.

## ALPHABETICAL LISTING OF FLAX WORLD COLLECTION

NAME	CI_NO	SOURCE	COUNTRY	YEAR	F_OR_S
A/4 1/2 FIBER	11774		C & CF RES. BR.	1957	
A 1200	2581		CZECH•	1969	
ABYSSINIA (BROWN)	301		ABYSSINIA	1924	
ABYSSINIA (BROWN)	302		ABYSSINIA	1924	
ABYSSINIA (YELLOW)	300		ABYSSINIA	1924	
ABYSSINIAN BROWN	701		ABYSSINIA	1931	
ADOPTIVLUGG	2312		GREECE	1962	
AFGHANISTAN	2582		CZECH•	1969	
AGR. 1-25-70 SEL•	853		NORTH DAKOTA	1936	
AGR. 1-25-70 SEL•	898		NORTH DAKOTA	1938	
AGRI	2454		TURKEY	1965	
AH 811 FC 15D EEP2265	2833		ARGENTINA	1975	
AH 827-F5-30 EEP2296	2835		ARGENTINA	1975	
ALBUFEIRA	2666		FRANCE	1969	
ALC-11-6	2584		CZECH•	1969	
ALC-11-2	2583		CZECH•	1969	
ALFA OLAJLEN	2585		CZECH•	1969	
ALSEE	2287		INDIA	1961	
ALTAMURA	2313		GREECE	1962	
AMALLA	2433		ETHIOPIA	1964	
AMBC	1528		NORTH DAKOTA	1952	
AM• (CROSS) SEL•	788		URUGUAY	1934	
AR	1110		URUGUAY	1944	
AR• (CROSS) SEL•	787		URUGUAY	1934	
ARAD	2391		HUNGARY	1963	
ARG. CI 342 X B GOLDEN	943		MONTANA	1938	
ARG. 8C X B. GOLDEN	1166		CANADA	1948	
ARG. 191XBIS)(VIKGXBIS	1164		NORTH DAKOTA	1948	
ARG. 191-BIS X VIK-EIS	1487		NORTH DAKOTA	1952	
ARG. 404XBISON.B41-2760	1048		NORTH DAKOTA	1941	
ARGENTINE	379		EGYPT	1926	
ARGENTINE	417		MINNESOTA	1928	
ARGENTINE	505		RUSSIA	1930	
ARGENTINA SELECTION	416		MINNESOTA	1928	
ARGENTINE SELECTION	462		MINNESOTA	1928	
ARGENTINE SELECTION	462-6		MINNESOTA	1928	
ARGENTINE SELECTION	463		MINNESOTA	1928	
ARGENTINE SELECTION	463-4		MINNESOTA	1928	
ARGENTINE SEL• GS	705		MONTANA	1932	
ARGENTINE SEL• GS	1112		CALIFORNIA	1944	



## ALPHABETICAL LISTING BY SOURCE AND COUNTRY OR STATE

NAME	C1_NO	SOURCE	COUNTRY	YEAR	F_OR_S
P•I• 253973	2065	IRAQ	IRAQ	1959	
BEATALL	724	IRELAND	IRELAND	1932	F
J•W•S•	388	IRELAND	IRELAND	1927	F
LIRAL CROWN	882	IRELAND	IRELAND	1938	F
NO• 1	1650	IRELAND	IRELAND	1955	
NO• 2	1651	IRELAND	IRELAND	1955	
NO• 3	1652	IRELAND	IRELAND	1955	
NO• 4	1653	IRELAND	IRELAND	1955	
NO• 5	1654	IRELAND	IRELAND	1955	
NO• 6	1655	IRELAND	IRELAND	1955	
NO• 7	1656	IRELAND	IRELAND	1955	
NO• 8	1657	IRELAND	IRELAND	1955	
STORMONT GOSSAMER	728	IRELAND	IRELAND	1932	
262522	2265	ISRAEL	ISRAEL	1960	
262523	2266	ISRAEL	ISRAEL	1960	
252525	2267	ISRAEL	ISRAEL	1960	
262526	2268	ISRAEL	ISRAEL	1960	
262527	2269	ISRAEL	ISRAEL	1960	
CAPACE	2773	ITALY	ITALY	1971	
MARSIC	2774	ITALY	ITALY	1971	
TRENTO	2775	ITALY	ITALY	1971	
NANSHO PI 194834	1504	JAPAN	JAPAN	1952	
SAGINO # 1 PI 194815	500	JAPAN	JAPAN	1929	
SAGINO #2	1505	JAPAN	JAPAN	1952	
SAGINO #2	1506	JAPAN	JAPAN	1952	
UNRYU	1507	KENYA	KENYA	1932	
J•W•S•	708-1	KOREA	KOREA	1932	
KOREAN	709	MANCHUR.	MANCHUR.	1915	
USSURIISK	132	MOROCCO	MOROCCO	1924	
L•G• 01898	303	MOROCCO	MOROCCO	1957	
L•G• 0185-4	1688	MOROCCO	MOROCCO	1957	
NO• 11	1689	MOROCCO	MOROCCO	1957	
NO• 129	1683	MOROCCO	MOROCCO	1957	
NO• 205	1684	MOROCCO	MOROCCO	1957	
NO• 547	1685	MOROCCO	MOROCCO	1957	
NO• 548	1686	MOROCCO	MOROCCO	1957	
RECOLTE	1687	MOROCCO	MOROCCO	1957	
RECOLTE NO•	1548	MOROCCO	MOROCCO	1952	
RECOLTE NC•	1557	MOROCCO	MOROCCO	1952	
RECOLTE NC•	1592	MOROCCO	MOROCCO	1952	
RECOLTE NC•	1593	MOROCCO	MOROCCO	1957	
1015	1690	MOROCCO	MOROCCO		

### MORPHOLOGIC AND AGRONOMIC DATA

Many characteristics are included in this data describing various morphologic and agronomic characteristics of the entries in the Flax World Collection. A key to the data is the following:

Source

1st number	1 United States 2 Canada 3 South America 4 Europe 5 Mediteranean 6 Middle East 7 Far East 8 Pacific 9 Misc.
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2nd number	1(U.S.)	1 Minnesota 2 North Dakota 3 South Dakota 4 Montana 5 California 6 Texas 7 Oregon 8 North Carolina 9 Unknown or Misc.	2(Can.)	1 Winnipeg, Manitoba 2 Saskatoon, Sask. 3 Indian Head, Sask. 4 Ottawa, Ontario 5 Lethbridge 6 Edmonton, Alberta 7 8 9 Unknown or Misc.
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3(S.A.)	1 Argentina 2 Brazil 3 Uruguay 4 5 6 Guatemala, Central America 7 Costa Rica, Central America 8 9 Misc.
---------	---

4(Europe)	1 Germany 2 France 3 British Isle 4 Netherlands 5 Sweden-Norway 6 Russia 7 Hungary-Rumania 8 Poland-Czechoslovakia 9 Misc.
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5(Mediter-	1 Yugoslavia	6(Middle	1 Turkey
anean)	2 Bulgaria	East)	2 Egypt
	3 Greece		3 Iraq
	4 Italy		4 Arabia-Persia (Iran)
	5 Spain-Portugal		5
	6 Morocco		6 Siberia
	7 Algeria		7 Abyssinia (Ethiopia)
	8		8 Africa
	9 Misc.		9 Misc.
7(Far	1 India	8(Pacific)	1 Australia
East)	2 Pakistan		2 New Zealand
	3 Burma		
	4 Indo-China		
	5 China		
	6 Japan		
	7 Afghanistan		
	8		
	9 Misc.		

#### Plant Type

- 1 Fiber
- 2 Spring type seed flax
- 3 Winter type seed flax
- 4 Short, large seed, Indian seed flax
- 5 Ethiopian "forage" type
- 6 Mediteranean or Argentine seed flax

#### Anther, Filament, Style, Stigma, and Petal Color Intensity

- 1 Very light
- 2 Light
- 3 Medium
- 4 Dark
- 5 Very Dark

#### Anther, Filament, Style, Stigma, and Petal Color

- 1 White
- 2 Pink
- 3 Yellow
- 4 Blue
- 5 Lavender (Reddish blue)
- 6 Turquoise
- 7 Yellow-turquoise

Petal Width

in millimeters

Capsule Type

- 1 Indehiscent - no splitting of locules
- 2 Indehiscent - slight splitting of locules
- 3 Semi dehiscent - splits between locules
- 4 Semi dehiscent - pronounced splitting of locules
- 5 Dehiscent - boll splits open upon maturity

Pubescence of Boll Septations

- 1 Glaborous (no pubescence) on boll septations
- 2 Slight pubescence of boll septations
- 3 Pubescent

Seed Color

- 1 Very light yellow
- 2 Yellow
- 3 Greenish yellow
- 4 Dark greenish yellow or olive
- 5 Very dark olive
- 6 Light brown (reddish)
- 7 Medium brown
- 8 Dark brown

Seed Weight (grams per M)

Plant Height (inches)

St. Paul Wilt 1(resistant) - 9(very susceptible)

Other Wilt

Pasmo-leaf (av. of readings at Brookings & Watertown)

Pasmo-stem (av. of readings at Brookings & Watertown)

Rust - St. Paul 1 (immune) - 5 (susceptible)

Rust - Winnipeg

Anthracnose 1 (resistant)- 9 (susceptible)

Curly Top 1 (tolerant) - 9 (susceptible)

Aster Yellows 1 (tolerant) - 9 (susceptible)

Reaction to MCP 1 (tolerant) - 9 (sensitive)

Reaction to Dalapon 1 (tolerant) - 9 (sensitive)



R	A	C	T	D	A	L	5	8	8	8	7	6	6	5	6	6	9	9	8	3	8	5	5	7	8	8	7	9	5	4	9	3	9	7	6	7	H
R	A	C	T	M	C	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	4	5	5	5	4	4	4	4	4	4	4	5	5		
C	R	L	Y	T	O	P																															
A	N	T	I	R	A	C	5	5	5	5	5	6	5	5	6	5	5	6	0	0	6	5	6	5	5	5	5	0	6	5	0	6	5	5	5		
R	U	S	T	I	S	T	0	5	4	6	5	2	3	6	6	3	3	2	3	3	3	5	4	4	4	4	0	0	5	4	5	1	5	2	2	5	
P	A	S	M	O	S	T	2	3	2	4	3	3	3	3	4	4	4	3	2	2	5	4	2	3	3	3	2	3	3	4	3	3	2	2	2	3	
P	A	S	M	O	S	T	2	5	4	0	7	0	7	0	4	5	4	5	4	5	0	4	5	5	5	5	5	5	5	5	5	5	5	5	5		
O	T	H	W	I	L	T	2	5	3	0	3	5	0	3	5	0	3	5	0	3	5	0	3	5	0	3	5	0	3	5	0	3	5	0	3	5	
O	T	H	W	I	L	T	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
P	U	B	E	S	C	E	1	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
P	E	C	B	P	S	U	1	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
P	E	T	I	W	D	T	0	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
P	E	T	I	O	L	R	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
P	E	T	I	O	L	R	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
S	T	G	I	C	O	L	1	4	5	4	5	5	4	5	5	4	5	1	5	5	4	4	4	4	4	4	4	5	4	4	5	4	4	4	1	5	
S	T	G	I	C	O	L	3	2	3	2	3	3	2	3	3	2	4	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3			
S	T	Y	I	C	O	L	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4			
S	T	Y	I	C	O	L	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
F	I	L	I	C	O	L	1	6	1	4	4	4	4	4	4	4	1	4	1	1	4	1	1	4	1	4	4	4	4	4	4	4	4	4	4		
F	I	L	I	C	O	L	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
A	N	I	C	O	L	R	7	4	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			
A	N	I	C	T	I	N	3	2	3	3	3	2	3	3	3	4	3	3	3	2	4	3	2	2	2	2	2	2	2	2	2	2	2				
P	L	I	T	Y	P	E	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2				
S	O	U	R	C	E	E	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6	4	6			
C	I	N	S	E	L		5	6	4	5	6	5	6	4	5	7	1	5	7	3	4	5	7	5	6	4	5	7	7	8	5	8	6	9	3		
C	I	N	S	E	L		5	6	3	5	6	5	6	4	5	6	5	7	1	5	7	3	4	5	7	5	6	4	5	7	7	8	5	8	6	9	3

#### OIL CONTENT AND QUALITY OF THE FLAX WORLD COLLECTION

The oil percentage, iodine value, linoleic fatty acid percentage, and linolenic fatty acid percentage are listed for most entries of the Flax World Collection (see Table 5 for sample). The order of listing is by the C.I. number assigned to each entry.

#### RANKING OF ENTRIES BY OIL PERCENTAGE

A listing of the entries having the highest oil content, with the percentage of linoleic and linolenic fatty acids, is valuable for breeders searching for sources of germplasm with high oil content (see Table 6 for example). The identification of the listing is by the C.I. number assigned to each entry. The entries with the highest oil percentage were C.I. 473 and C.I. 781. C.I. 473, sib 206, is a North Dakota entry and C.I. 781 is an Indian commercial line collected and entered via Minnesota in 1934.

## OIL PERCENTAGE OF ENTRIES IN THE FLAX WORLD COLLECTION

C.I.	No.	Source	Oil %	IV	Linoleic	Linolenic	Sap	Val
3	8	1	40.9	191.1	12.0	58.6	187.5	
20		1	38.4	188.8	13.2	57.0	188.2	
21		1	42.8	180.2	8.0	54.0	188.2	
23		1	39.1	175.2	12.1	52.8	188.2	
24		1	40.1	190.4	10.0	59.0	188.3	
31		1	39.6	185.2	10.4	50.0	188.5	
36		1	42.5	182.4	11.8	54.4	187.7	
42		1	41.0	193.6	11.6	57.5	187.8	
114		1	43.0	187.4	14.5	60.7	188.0	
132		1	37.7	191.2	10.9	58.8	189.0	
133		1	41.2	191.2	14.0	56.2	186.4	
140		1	44.8	189.6	14.0	57.2	188.5	
156		1	41.4	185.3	13.0	54.5	186.8	
157		1	40.4	179.4	10.0	55.5	188.6	
173		1	37.6	185.5	8.8	58.4	185.8	
176		1	43.8	180.0	9.8	55.2	189.2	
184		1	42.1	190.4	15.4	55.8	188.0	
188		1	40.9	185.5	11.9	54.3	188.3	
244		1	41.6	194.3	12.0	55.9	186.6	
270		1	38.4	191.2	13.8	56.1	185.8	
274		1	40.4	188.5	13.1	53.6	186.3	
280		1	38.9	190.9	16.0	59.6	188.4	
295		1	42.2	187.7	10.7	57.7	189.2	
300		1	39.4	182.9	12.5	56.7	188.9	
301		1	37.0	189.1	10.1	57.3	189.5	
302		1	38.2	194.3	10.4	59.3	186.8	
303		1	38.8	190.6	13.6	60.6	188.8	
320		1	40.5	192.2	10.4	58.8	187.2	
321		1	41.1	188.5	13.2	57.1	186.6	
323		1	38.2	184.2	11.4	52.8	188.9	
324		1	39.3	182.6	11.6	52.3	189.3	
325		1	39.0	184.6	11.3	53.3	183.9	
326		1	41.2	189.2	9.2	54.2	193.4	
327		1	40.2	190.4	12.3	56.8	187.0	
333		1	40.0	181.6	12.1	57.1	187.1	
333		1	36.1	184.6	10.2	52.5	186.6	
341		1	40.5	191.4	11.0	54.5	184.9	
342		1	39.8	184.4	10.9	57.9	186.7	
			43.1	187.4	10.5	56.1	186.7	
						57.5	190.1	



## RANKING OF ENTRIES BY OIL PERCENTAGE

C.I. No.	Source	Oil %	IV	Linoleic	Linolenic	Sap Val
473	1	45.8	187.1	11.0	58.1	192.8
781	1	45.4	183.2	10.4	57.9	187.9
721	1	44.9	186.7	10.0	59.4	188.4
133	1	44.8	189.6	14.0	57.2	188.5
1013	1	44.5	189.3	13.2	56.0	187.1
1173	1	43.8	180.6	9.8	55.2	189.2
647	1	43.4	193.2	10.5	60.8	187.9
1081	1	43.4	192.4	12.4	57.9	189.9
1466	1	43.3	177.6	9.9	52.8	190.7
1265	1	43.2	184.2	11.9	54.4	189.0
342	1	43.1	187.4	10.2	57.5	190.1
698	1	43.1	180.3	11.6	52.1	187.6
1041	1	43.1	194.8	14.5	60.3	187.6
42	1	43.0	187.4	14.5	60.7	188.0
617	1	43.0	184.3	13.9	53.6	188.4
1356	1	43.0	184.6	10.9	53.9	192.0
1465	1	43.0	177.4	10.4	54.0	191.4
980	1	42.9	190.1	13.8	54.6	187.9
20	1	42.8	180.2	8.0	54.0	188.2
355	1	42.8	192.1	13.3	58.1	187.4
1082	1	42.6	190.8	13.2	56.1	190.8
1133	1	42.6	190.6	12.8	57.1	190.3
31	1	42.5	182.4	11.8	54.4	187.7
379	1	42.5	188.0	12.2	54.1	189.0
842	1	42.5	191.1	16.1	56.8	188.2
472	1	42.4	188.6	10.7	56.4	188.6
907	1	42.4	187.7	11.3	54.1	186.0
952	1	42.4	193.4	13.0	59.9	188.9
1364	1	42.4	187.6	10.2	54.2	183.8
1567	1	42.4	175.8	8.0	53.4	189.1
490	1	42.3	183.5	12.4	53.7	186.8
1348	1	42.3	183.0	10.6	53.9	189.1
1626	1	42.3	180.7	6.7	56.7	191.3
280	1	42.2	187.7	10.7	57.7	189.2
470	1	42.2	183.5	10.3	54.4	187.0
690	1	42.2	180.8	11.4	57.4	189.1
629	1	42.2	179.0	14.0	50.7	189.9
176	1	42.1	190.4	15.4	55.8	188.0
463	1	42.1	187.4	10.8	58.3	187.3
642	1	42.1	193.6	15.2	62.6	188.4

## RANKING OF ENTRIES BY LINOLENIC FATTY ACID PERCENTAGE

A listing of the entries having the highest linolenic fatty acid percentage identified C.I. 637 and C.I. 958 as potential germplasm sources for use in breeding programs. C.I. 637 is an accession line from Russia, P.I. 91037, entered in 1931 and C.I. 958 is a Bolley Golden x Bison cross entered in 1938 from Montana (see page 19 for example).

## RANKING OF ENTRIES BY LINOLEIC FATTY ACID PERCENTAGE

The listing of the entries having the highest linoleic fatty acid percentage indicate two accessions are over 18% linoleic acid (see Table 8 for example). C.I. 569 and C.I. 606 are both Russian introductions entered in the collection in 1931. C.I. 684 had both a high linoleic and linolenic acid percentage, and is a cross Saginaw x Ottawa 770B cross entered in the Collection from Minnesota.

## RANKING OF ENTRIES BY LINOLENIC FATTY ACID PERCENTAGE

C. I. No.	Source	Oil %	IV	Linoleic	Linolenic	Sap Val
637	1	41.2	196.6	15.0	65.5	188.5
958	1	36.8	196.7	12.9	63.8	189.0
1499	1	39.6	191.5	9.0	63.1	189.0
684	1	39.4	198.2	17.6	63.0	187.3
976	1	40.4	191.2	11.8	63.0	189.7
716	1	40.9	195.6	17.3	62.9	188.0
642	1	42.1	193.6	15.2	62.6	188.4
1423	1	39.4	192.4	9.6	62.1	186.9
845	1	38.2	195.4	13.0	61.9	190.0
1118	1	40.2	192.0	13.6	61.5	187.5
1391	1	40.4	190.8	9.1	61.4	190.1
1127	1	41.1	195.3	15.7	61.2	189.0
687	1	40.5	195.0	9.3	61.2	189.8
1170	1	40.4	193.4	12.0	61.1	188.9
926	1	38.2	193.5	16.2	60.9	189.1
1634	1	40.8	192.2	8.6	60.9	186.7
647	1	43.4	193.2	10.5	60.8	187.9
42	1	43.0	187.4	14.5	60.7	188.0
302	1	39.2	190.6	13.6	60.6	188.8
643	1	42.1	191.0	10.5	60.6	190.0
1079	1	39.8	193.0	14.7	60.3	188.1
1041	1	43.1	194.8	14.5	60.3	187.6
719	1	42.0	193.9	11.6	60.3	189.1
1220	1	41.8	190.2	10.5	60.3	189.3
1478	1	37.3	191.1	8.9	60.2	189.2
400	1	38.9	194.4	12.0	60.1	186.8
1647	1	40.6	190.9	8.6	60.1	183.6
514	1	41.3	190.9	10.4	60.0	188.6
531	1	38.6	196.2	14.5	59.9	186.8
952	1	42.4	193.4	13.0	59.9	188.9
399	1	38.7	194.5	12.1	59.9	186.1
492	1	40.3	189.1	10.5	59.9	187.9
520	1	40.8	193.4	15.3	59.8	187.5
1176	1	40.7	187.6	14.0	59.8	189.0
1138	1	40.2	188.5	11.4	59.8	189.8
1137	1	40.7	193.6	12.0	59.7	188.5
981	1	41.4	193.6	9.2	59.7	188.6
274	1	38.9	190.9	16.0	59.6	189.4
1646	1	39.5	189.4	9.2	59.6	189.4
1633	1	40.3	189.4	8.0	59.6	187.7



## RANKING OF ENTRIES BY LINOLEIC FATTY ACID PERCENTAGE

C. I. No.	Source	Oil %	IV	Linoleic	Linolenic	Sap Val
569	1	40.3	193.1	18.9	57.1	188.2
606	1	37.6	189.1	18.7	54.5	188.2
684	1	39.4	198.2	17.6	63.0	187.3
623	1	39.7	191.3	17.6	57.4	188.0
557	1	41.0	191.0	17.4	57.2	186.9
716	1	40.9	195.6	17.3	62.9	188.0
574	1	39.5	193.0	16.9	57.1	185.8
515	1	41.3	190.4	16.8	54.6	189.8
926	1	38.2	193.5	16.2	60.9	189.1
842	1	42.5	191.1	16.1	56.8	188.2
570	1	39.4	193.4	16.0	57.5	188.1
274	1	38.9	190.9	16.0	59.6	188.4
1019	1	39.7	177.2	16.0	53.6	189.6
1018	1	39.4	180.0	15.8	52.1	189.4
1127	1	41.1	195.3	15.7	61.2	189.0
522	1	38.4	193.2	15.7	57.1	188.5
873	1	37.1	191.6	15.7	58.0	188.8
576	1	39.2	190.6	15.7	56.4	189.0
1017	1	39.1	177.4	15.6	50.6	188.2
1176	1	42.1	190.4	15.4	55.8	188.0
775	1	40.0	190.4	15.4	57.7	189.2
520	1	40.8	193.4	15.3	59.8	187.5
1028	1	39.7	192.6	15.3	58.9	187.4
642	1	42.1	193.6	15.2	62.6	188.5
1224	1	40.3	185.5	15.2	52.9	191.8
1229	1	39.7	177.9	15.2	48.4	190.8
446	1	38.9	189.2	15.1	54.8	188.2
637	1	41.2	196.6	15.0	65.5	188.5
715	1	39.4	191.8	15.0	56.7	189.7
1308	1	40.5	174.8	15.0	49.3	190.7
776	1	37.9	189.6	14.9	56.2	189.4
517	1	41.6	189.4	14.9	56.0	184.7
411	1	38.1	193.8	14.8	57.4	187.6
1079	1	39.8	193.0	14.7	60.3	188.1
1078	1	40.5	190.7	14.7	58.3	190.6
909	1	40.3	189.6	14.6	59.1	190.2
1117	1	39.6	188.0	14.6	56.8	184.0
1178	1	40.4	187.4	14.6	57.2	191.0
1223	1	39.8	182.6	14.6	54.4	185.0
1247	1	37.8	174.2	14.6	49.2	189.7

### INVENTORY OF THE USDA-ARS FLAX WORLD COLLECTION

An inventory of the present Flax World Collection has been prepared utilizing the computer facilities at North Dakota State University (see page 23 for example). This facility has enabled immediate updates regarding condition and content of all entries as changes occur. On an average, two requests are received each month and number of entries requested range from 5 to 50.

The inventory lists the gram amount presently in storage, the year the entry was last increased, the germination percentage of the seed in storage, and the year the last germination percentage was determined. Germination capability of each entry will be determined every three years in the future. The minimum gram amount has been determined to be 100 grams and if the amount in storage is below that figure, the entry will be increased either at our winter nursery location or at Fargo, North Dakota. The minimum germination percent has been determined to be 75% and if below that figure, the entry will be increased.

## INVENTORY OF THE USDA-ARS FLAX WORLD COLLECTION

C. I. No.	Grams	Year Increased	Year Tested	Germination %	Year Comments
490	120			94	
492	135			76	
494	230			88	
498	300			83	
500	235			76	
505	250			76	
506	115	75	75	94	DEHISCENT
507	215			95	
509	155			94	
510	130			81	
514	135			92	
515	190			70	
516	260			99	
517	290			90	
518	500			83	
519	130			78	
520	175			87	
522	260			96	
523	260			93	
524	230			97	
525	200			79	
526	330			93	
528	150			70	
531	355			97	
532	570			94	
533	170			68	
537	205			89	
538	285			89	
543	220			90	
544	235			89	
547	120			83	
548	190			90	
550	215			97	
551	235			91	
552	275			92	
553	280			96	
554	136			96	
555	350			79	
556	160			89	
557	145	75	75	96	DEHISCENT

